V- PLOUGH VDP2400

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USER MANUAL

2015-2016

MEIREN SNOW
Push your limits. Expand your boundaries.

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CE DECLARATION OF CONFORMITY

Manufacturer: **Meiren Engineering OÜ**
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We hereby declare that the below mentioned product:

Butterfly plough

MEIREN SNOW VDP

Model: .....

Serial number: .....

Manufacturing date: .....

meets the following directives and standards:

2006/42/EC
EN 349:1993+A1:2008

FOREWORD

We thank you for having chosen a Meiren Snow product. This operator manual consists of technical data, user and maintenance instructions and warranty conditions of VDP series snowploughs. VDP series snowploughs are designed for removing snow from surfaced roads. The product is not suitable for removing sand, gravel, ice or other similar material. Purposeless usage of the plough may cause economic losses and injuries. Thus it is of the utmost importance that the person operating the plough, read through the manual and use the product pursuant to the requirements. Any misuse of the product releases the manufacturer from the liability for occurred damages and for reimbursing losses.

GENERAL SAFETY REQUIREMENTS

As the construction of the product is complex and it contains moving parts, it is of the utmost importance that the person working with the equipment be aware of all safety risks. To reduce the risks it is important that

- the operator have read through the operator manual;
- the operator have been given an appropriate training, which gives him the permit to use a product of this type in his work;
- the operator have been provided with all necessary tools and is wearing suitable working clothes.

PERSONNEL

This product may only be used and maintained by properly trained personnel. The operator's employer is obliged to ensure fulfilment of all user instructions and safety requirements stipulated by the manufacturer.

Before starting working with the plough, please be sure to read carefully through the operator's manual.

1. PRODUCT DESCRIPTION

Snow plough VDP 2400F has durable steel construction and partially made of plastic blade. The advanced spring mechanism on the plough is designed to reduce impacts caused by uneven roads, ensuring quick and fast passing over any obstacles.

The advantage of the system is the possibility to adjust separately **the cutting angle of the cutting blades** in relation to the road and the tension of the springs, i.e. **stiffness of the cutting blade** (see chapter "Adjusting the plough"). It might be necessary in case steel and rubber blades are used alternatively. As **the rotating point of the cutting blades** is located slightly afore the work surface of the cutting blade, in case hitting an obstacle the cutting blade, when inclining backwards, will also start to rise up immediately, ensuring thus fast and smooth passing around the object.

The benefits of a blade partially made of plastic compared to a steel blade are increased rust resistance, lower noise level and lighter weight. For plastic material we use a special frost and wear-resistant plastic. Indices 2400 is used in the marking of the plough show the approximate total width of the cutting edge of the blade in millimetres. Models designed for front-end loaders are marked with the letter "F".

The blade is mostly made of high-strength steel. The product is finished with polyurethane paint, which compared to common paints, is more wear-resistant. All pins and other fastening elements are treated with zinc.

Model	**VDP2400F**
Total width of the plough flap blades, mm	2445
Plough blade working width in case of max. swivel angle, mm	2040
Total width of the plough, mm	2510
Plough blade height (incl. blades), mm	685
Plough max. swivel angle (both sides), °	33
The cutting angle of blades (in relation to the ground surface):	90°/-15°
Plough total weight (excluding cutting edges, any additional equipment), kg	260

Table 1. Technical specification of the VDP plough

1.1. Standard equipped snow plough includes the following:

- Rotation and lifting cylinder
- 1/4" hoses with quick connection nozzles
- 2-section spring mechanism
- Safety markings (reflectors in front and behind) and LED-marker lights
- Colour: yellow, RAL 1007

1.2. Additional equipment

- Remote control
- Extra lights
- Rubber or steel blades set
- Hydraulic pump, additional valves

2. SAFETY REQUIREMENTS FOR OPERATING THE SNOWPLOUGH

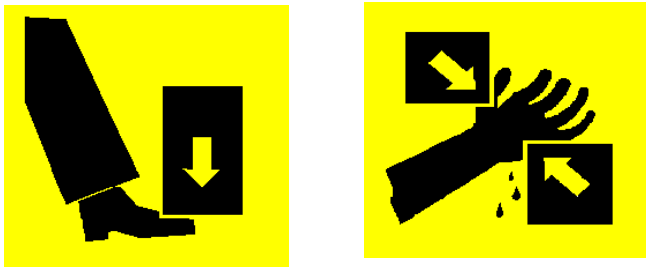
Before operating the plough

- Check that the plough set is complete and that it is in good operational order. It is forbidden to use equipment that is not in good operational order.
- Check that there are no people or objects near the plough, which could be injured or damaged by the plough. In addition safety of people carrying out maintenance of the plough, repairing the plough or moving the plough with the help of hydraulics or any other means has to be ensured. Neglecting of the safety requirements can cause injuries to people (the plough is provided with safety markings, see Figure 1).
- It is forbidden to work under a plough that is lifted up and not supported.
- Check that the plough is properly fastened to the wheel loader or tractor and that the fastenings are not damaged.
- Check that the safety markings, plough side lights (if provided) and reflectors are in good operational order.
- Check the operational order of cutting edges (if provided also the condition of skid shoe or wheels); The cutting edges shall be adjusted, reversed or replaced latest when the distance between the cutting edge and the fastening openings is less than 26 mm;
- Check the condition of the fastening wedges of the blades;
- Check the condition of levers and fastening pins of the cylinders;
- Check that the hydraulic hoses are intact and properly fastened;
- Check that the plough is properly greased;
- Check that the plough has no damages.

Working with the snow plough

- Always pay attention to the surrounding and other traffic, including from the side roads and to the vehicles approaching from the rear. Pay attention to the pedestrians and cyclists not to cause them any risk when working with the snowplough. All warning lights must always be switched on during working!
- Follow the general traffic rules!
- The maximum permitted operation speed of the plough in normal road conditions **is up to 35 km/h**.
- Follow the weather conditions: when it is melting reduce the speed; when the snow is light pay attention to the wind direction and reduce the speed, if necessary.
- When working on soft ground reduce the speed, since the cutting edges may cut in the surface and you may lose control of the truck (or tractor) and the vehicle may run off the road. If the surface is soft support the plough with skid shoe, wheels or an additional blade.
- The plough can only be used for removing loose snow! It is forbidden to use the plough for removing ice, frozen snowdrifts, rock, gravel, sand and other similar material.
- It is forbidden to remove the snow bank at maximum permitted full speed since this may damage the plough.
- It is forbidden to remove snow outside of road boundaries.
- In the event the plough is used on uneven roads or the user “pulls” snow when driving vehicle in reverse where there is a risk of damaging the plough, vehicle or road surface, the user shall bear sole responsibility for such an activity. The manufacturer shall not be liable for any losses caused by the above mentioned activities.
- It is forbidden to attach such additional equipment on the moving parts of the plough that are not approved by the manufacturer.
- It is forbidden to use hydraulically operating equipment as a lifting jack.
- The plough may be lifted only from eye bolts.

Each time there is an incident during operation that could damage the equipment, an inspection of the equipment shall be arranged with the aim of detecting and evaluating possible damages. Damages (cracks in the structure or welded joints, deformed parts) may damage property and cause injuries. It is forbidden to continue work until the damages are repaired.



Drawing 1. Safety marking: ACCIDENT RISK!

3. OPERATION WITH THE SNOW PLOUGH AND INSTALLATION

3.1. Installation of a plough

Mounting shall be performed on a level surface!

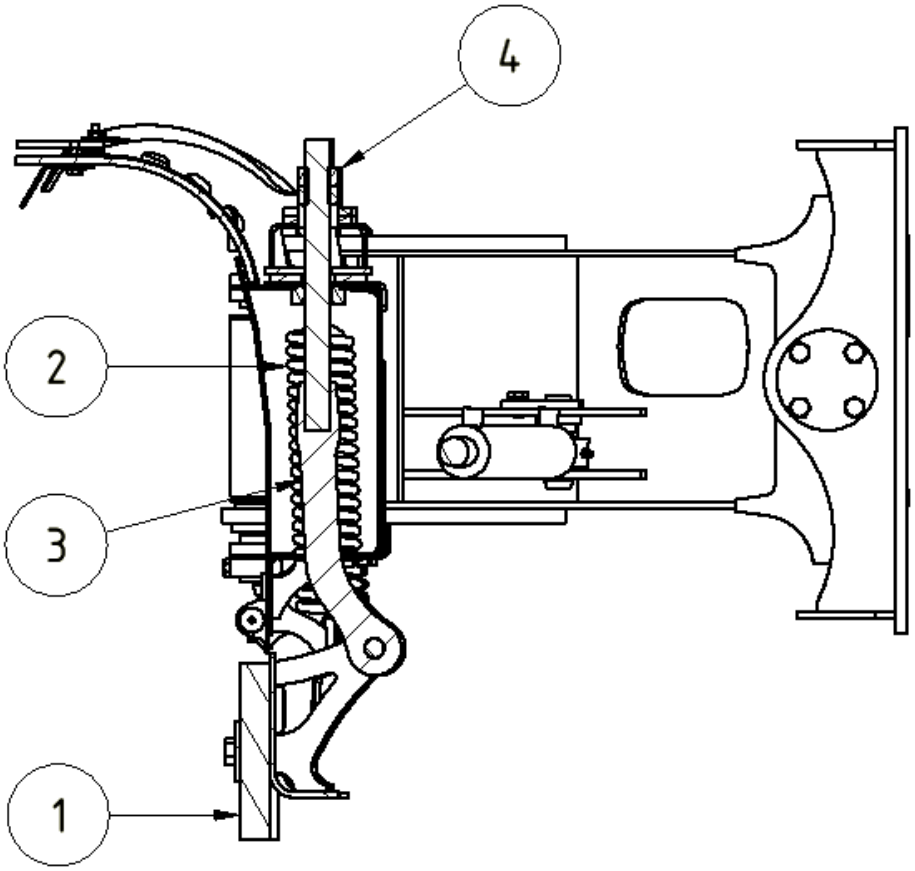
A plough for the front end loader is provided with a fastening mechanism determined by the customer (normally pins do not belong in the delivery) and installation of such a plough is similar to the installation procedure of the bucket or any other attachment used by the customer.

3.2. Plough adjustments

See Drawing 2!

The angle of the first main blades (1) of the plough can be adjusted in relation to the ground and in addition tension of the springs (2) can be adjusted separately. To change blade angle turn the nuts (4) located in the center of the spring mechanism pusher (3) in one or another direction. After adjustment lock the nuts properly.
When working with the steel cutting edge it is recommended that the cutting edge be slightly inclined (5...10°) backwards, to prevent jumping movements of the plough (rubber is flexible).

For adjusting the spring tension tighten the nuts with spring pullers.



Drawing 2. Adjustment of the VDP plough

3.3. Electric valve

E8312PV- is possible to turn cylinders separately or in synchronously
E6212PV- allows to turn one cylinder at a time
KVP12- relief valve

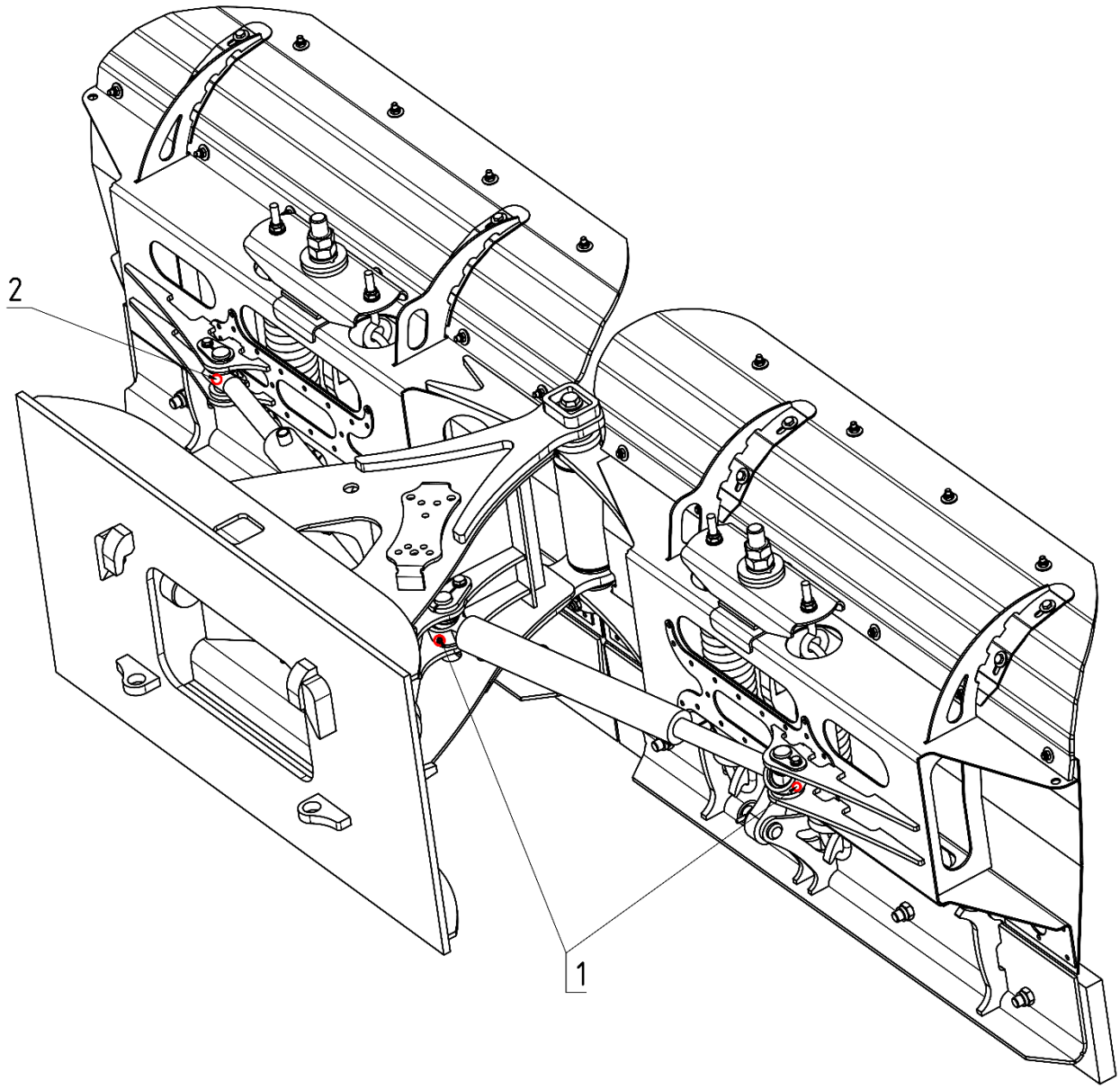
Electric valves are used when a client machine does not have enough output.

4. MAINTENANCE

MAINTENANCE EVERY 8 WORKING HOURS	MAINTENANCE EVERY 150 WORKING HOURS	MAINTENANCE AT THE END OF THE SEASON
Check all bolt connections and hydraulic connections and tighten, if required.	Check all bolt connections and tighten, if required.	Check all bolt connections and tighten, if required.
If the plough is provided with wheels, check the bearing backlach (see spare parts catalogue, Drawing 14). If the backlach is to wide, disassemble the wheel hub (9), check bearings (29) and adjust backlach (use a nut (25) and a special fixing washer (24)).	Check the conditions of mounting bolts of blade holders. The bolt (4, Drawing 1) torque should be approximately 60 Nm. Before thighten and check, the lock nut must be released.	Check that there are no leakages in the hydraulic system. If required, tighten the connections of the hydraulic parts and hose ends.
Check that there are no leakages in the hydraulic system. If required, tighten the connections of the hydraulic parts and hose ends.	Lubricate all grease points: bearings of rotation and lifting cylinder mouldboard, bearings of parallelogram, bearing of mounting frame in case of Norway and Danish attachment. In case of skid shoe and wheel lubricate the adjustment mechanism.	Spray the zinc coated parts, hydraulic valves and hose ends with rust resistant wax.
Check the condition of the blades and fastenings. If necessary, adjust or replace the blades.	Check the condition of the blades and fastenings. If necessary, adjust or replace the blades.	Lubricate all grease points. Cover with wax the extended adjustment parts of internal tube of the skid shoe and wheel.
X	X	Check the plough visually and see if there are parts that need to be replaced.
X	X	Repair all paint damages.
X	X	Retract the piston rod of the cylinder and cover it with proper grease.
X	X	Store the plough in a place exposed to winds but protected from rain and UV radiation.

Lubricated pins are equipped with grease nipples and they have to be lubricated regularly (at least every 100 working hours). Grease nipples locate in cylinders, lower parts of the rotation axle, and bearings of lifting cylinder pins. The spring mechanism and pins of blades are wihtout bearings and it is advised to wax them once in a time (at least every spring before summer storage).

4.1. Grease points



Drawing 3. Grease points

Pos. Nr	Location	Quantity
1	Rotation cylinder, right	2
2	Rotation cylinder, left	2
	In all	**4**

Table 2. List of grease points

5. WARRANTY CONDITIONS OF THE PRODUCT

- The Seller gives the Product a guarantee for a term of 12 (twelve) months. The guarantee term starts upon delivery of the Product to the Buyer and the time of delivery is the date indicated in the deed of delivery and receipt or CMR.
- The guarantee covers the elimination by the Seller of any production, material or construction defects detected in the Product or details thereof during the guarantee period. The Seller is obligated to replace the defective Product with a new one only if the repairing of the Product or a detail or replacing of a detail is not possible.
- The Buyer undertakes to inform the Seller in writing of any defects detected during the guarantee term within seven (7) calendar days as of learning of the defect, describing the defect in sufficient detail.
- The Seller is obligated to carry out an expert assessment to identify the causes of the defect within fourteen (14) working days after the receipt of the written notice. In the event of a defect covered by the guarantee the Seller eliminates it within twenty (20) working days after the expert assessment.
- The performance of repair work under the guarantee takes place at the delivery address specified in the Order Confirmation. Major repairs are made in the territory of the Seller. The cost of transportation of the Product to the place of guarantee repairs is borne by the Buyer. The Buyer bears the costs of repairs exceeding the terms and conditions of guarantee repairs and the transportation costs.
- The following defects are not covered by the guarantee:
  - defects arising from the natural wear and tear of the Product;
  - defects arising from the characteristics or damages of the road cover;
  - defects arising from the use of the Product in conflict with its technical conditions, security rules and purpose;
  - defects arising from disregarding the rules of maintenance of the Product;
  - defects arising from a traffic accident;
  - defects of which the Buyer has not informed the Seller in writing within seven (7) days as of the emergence of the defect and/or whereby the Buyer has not given the Seller the chance to identify the cause of the defect in accordance with the Agreement.
  - to the extent whose expansion the Buyer could have reasonably prevented.
- The Product guarantee term terminates before the prescribed time as of the time when:
  - the Product has been independently repaired, without coordinating it with the Seller in writing beforehand;
  - the constructions of the Product have been changed, additional equipment has and/or spare parts have been installed without coordinating it with the Seller in writing in advance.
- If the Seller, in spite of repeated written inquiries by the Buyer, fails to perform its guarantee obligations arising from the Agreement, the Buyer shall have the right to eliminate the Product's defect at the Seller's expense. The Buyer must inform the Seller in writing at least five (5) working days before the replacement or repairing of a defective Product and submit to the Seller a calculation of the presumable reasonable costs.
- The Buyer may withdraw from the Agreement and demand that the Product be taken back and the Purchase Price refunded only if the defect cannot be eliminate or the part cannot be replaced and if replacement of the defective Product with a new Product would not produce the results that would allow for the purposeful use of the Product.
- The Product or a part thereof replaced during the guarantee term is covered by the guarantee until the expiry of the overall guarantee term of the Product.